Avian Influenza

Information for Poultry Producers and Allied Industries

Fact Sheet

No 6

Update 1

January 2002

Introduction

Most, if not all, avian species are susceptible to avian influenza (AI). Infections of lesser severity, or low pathogenic types of AI, occasionally cause some losses in affected flocks. Historically in California, low pathogenic AI has been manifested as a sharp drop in egg production in turkey breeder flocks. Importantly, low pathogenic infections may not produce any signs of disease.

Certain subtypes of influenza have been responsible for devastating disease outbreaks in commercial poultry throughout the world. These highly pathogenic types of AI are often referred to as fowl plague. Response to such outbreaks has usually included government-directed quarantine and depopulation of affected flocks, as well as restrictions on the movement of at-risk poultry and poultry products. The last major poultry outbreak in the United States government cost more than $60 million to eradicate the highly pathogenic virus involved.

Cause

Type A influenza virus. There are 15 antigenic subtypes of avian influenza virus.

Spread of the Disease

Avian influenza viruses are distributed throughout the world in domestic and wild birds. Migratory waterfowl, particularly ducks, harbor more avian influenza virus than any other species and usually do not show signs of disease. Seagulls and shorebirds are also important reservoirs. Wild birds have been incriminated in many AI outbreaks worldwide.

Development of the Disease

In poultry, AI infection covers the entire range of severity, from inapparent infection to sudden death. Clinical signs may appear 3-5 days after exposure to the virus. Mortality rates vary widely depending on the type and subtype of the virus, and host factors, including environmental stressors and other infections.

Signs of infected birds may include**:**

Clinical Signs

- Depression
- Decreased food consumption
- Decreased egg production
- Respiratory signs (coughing and sneezing)
- Swollen heads with bluish combs
- Hemorrhages on internal organs
- Diarrhea
- Soft or misshapen eggs

Diagnosis

In an AI outbreak, animal health officials collect and test blood and feces from affected birds. Blood samples are tested for the virus and evidence of antibodies against the disease. Feces are cultured for viral isolation. Different subtypes of influenza virus are described based on the hemagglutinin (H) and neuraminidase (N) surface molecules that produce immunity. The HN designation is used to identify particular subtype that caused the devastating Pennsylvania-Virginia-New Jersey outbreak.

The only practical protection against an outbreak of avian influenza is biosecurity. Because the virus can survive for long periods of time in organic material, the list of possible vectors is large and includes people, equipment and wild birds. The disease is spread between farms primarily through direct contact of healthy birds with fe-

Animal Health and Food Safety Services

For additional information contact the Animal Health Branch at:
Phone: (916) 654-1447 Fax: (916) 653-2215
Or visit our website at http://www.cdfa.ca.gov

CDFA™
California Department of Food and Agriculture

Redding District:	(530) 225-2140
Modesto District:	(209) 491-9350
Tulare District:	(559) 685-3500
Ontario District	(909) 947-4462
USDA-VS Area Office	(916) 857-6170 (877) 741-3690

Avian Influenza Fact Sheet (cont)

ces of infected birds. Although the virus may be transmitted between birds in a single house in the air, aerosol transmission probably does not occur between premises. The disease can also spread easily by indirect means. Contaminated material may be picked up on shoes and clothing, and carried from flock to flock. AI maybe be spread by vaccination crews, manure haulers, rendering truck drivers, feed delivery personnel, poultry industry has an important role to play in preventing the spread of AI and other diseases. Poultry veterinarians and extension agents can assist with the development of facility-specific biosecurity plans.

Prevention

The following biosecurity practices are recommended to safeguard commercial flocks from the entry of AI and other poultry diseases:

- Permit only essential workers and vehicles on the premises.
- Provide disposable coveralls, boots, and caps for visitors.
- Provide clean clothing and disinfections facilities for employees.
- Clean and disinfect vehicles (including tires) entering and leaving the premises.
- Avoid visiting other poultry operations.
- Do not keep other birds on the farm or hire employees who have birds for any purpose.
- Remove weeds and other vegetation from around poultry houses.
- Protect the flock from exposure to wild birds, rodents and insects
- Prevent accumulation of water around the facility which may attract wild birds.
- Control movements associated with the disposal of bird carcasses, litter, and manure.
- Take diseased birds to a diagnostic laboratory for evaluation.

Sanitation is an important biosecurity tool. The influenza virus can be killed by most disinfectants, heating, and/or drying.

- Equipment should be washed and sanitized, if possible.
- Remove manure from the facility in a timely manner and/or compost it.
- Houses should be disinfected with high-pressure sprayers.

Owners of backyard flocks should also work with their veterinarian to develop a biosecurity plan.

Consideration for Control and Eradication

State and federal officials determine if an AI virus causing an outbreak should be considered for eradication. First, extensive laboratory testing is done to determine the subtype and pathogenicity of the virus. To date, all highly pathogenic strains have been either in the H5 or H7 subtypes, and these are carefully assessed for pathogenicity. However, it is important to thoroughly study each virus isolate to protect the poultry industry. Since laboratory testing takes time, immediate control measures to contain the spread of the virus may be necessary. Once the nature of the virus is understood, control measures may be lifted. Conversely, depending on the pathogenicity and subtype, official control and eradication measures may be warranted. Quarantine, flock depopulation, and control of product movement may be used to halt the spread of infection. Because of the number of subtypes of virus and the fact that vaccines are not cross protective between subtypes, vaccines are impractical as a prevention tool. However, vaccines have been used effectively to protect potentially exposed flocks after an outbreak has occurred.

Trade Restrictions

National and international trade embargoes may be placed on affected states of countries during an avian influenza outbreak.

Risk to Human Health

Only one AI virus has ever been transmitted directly from chickens to humans. The H5N1 virus infected 18 people, killing 6, in Hong Kong in 1997. All poultry on the island were depopulated to prevent its spread. This subtype of virus has not appeared outside Hong Kong and has not infected anyone since.